

Claims

Claim 1. A computer program operated in a hand held computer for rapid, accurate, and economical gathering of medical emergency electronic data for emergency medical services, comprising:

5 a graphical user interface of the human body further comprising a first graphical representation of the human body, to simplify entry of all information gathered on an emergency medical call,

means for displaying graphical representations,

means for selecting data to be entered and stored from selections displayed on a screen, and

means for storage of entered data in the hand held computer.

10 Claim 2. The computer program of claim 1 wherein the graphical user interface of the human body further comprises graphical representations of one or more visible parts of the human body.

15 Claim 3. The computer program of claim 2 wherein the graphical representation of one or more visible parts of the human body further comprises a graphical representation of one or more visible parts of a female human body.

20 Claim 4. The computer program of claim 3 wherein the graphical representation of one or more visible parts of the human body further comprises a graphical representation of one or more visible parts of a male human body.

Claim 5. The computer program of claim 4 wherein the graphical user interface of the human body further comprises graphical representations of one or more orientations of visible parts of the human body.

5 Claim 6. The computer program of claim 5 wherein the graphical user interface of the human body further comprises means for selecting a graphical representation of a single visible part of the human body from a graphical representation of one or more visible parts of the human body.

10 Claim 7. The computer program of claim 6 wherein the means for selecting a graphical representation of a single visible part of the human body further comprises a software program for determining the location of a pen stylus on a touch sensitive screen.

15 Claim 8. The computer program of claim 6 wherein the graphical user interface of the human body further comprises means for selecting a graphical representation of a single orientation of a visible part of the human body from a graphical representation of one or more orientations of visible parts of the human body.

20 Claim 9. The computer program of claim 6 wherein the graphical user interface of the human body further comprises a computer program means for associating a graphical representation of a first human body part, having a selected second body part, with a graphical representation of the selected second body part.

Claim 10. The computer program of claim 9 wherein the graphical user interface of the human body further comprises a computer program means for associating a graphical representation of a first human body part, having a selected human body orientation, with a graphical representation of said first body part in the selected orientation.

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Claim 11. The computer program of claim 10 wherein the graphical user interface of the human body further comprises a computer program means for replacing a graphical representation of a first human body part, having a selected second human body part, with a graphical representation of said selected human body part.

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Claim 12. The computer program of claim 11 wherein the graphical user interface of the human body further comprises a computer program means for associating a graphical representation of a human body part with a stored identifying text.

Claim 13. The computer program of claim 12 wherein the graphical user interface of the human body further comprises one or more checklists of patient complaints.

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Claim 14. The computer program of claim 13 wherein the graphical user interface of the human body further comprises means for selecting one or more patient complaints from the checklist.

Claim 15. The computer program of claim 14 wherein the graphical user interface of the human body further comprises one or more checklists of observed conditions.

Claim 16. The computer program of claim 15 wherein the graphical user interface of the human body further comprises means for selecting one or more observed conditions from the checklist.

5 Claim 17. The computer program of claim 16 wherein the means for selecting one or more patient complaints from the checklist further comprises a software program for determining the location of a pen stylus on a touch sensitive screen.

10 Claim 18. The computer program of claim 17 wherein the graphical user interface of the human body further comprises computer program means for associating the selected patient complaints with the stored identifying text.

15 Claim 19. The computer program of claim 18 wherein the graphical user interface of the human body further comprises computer program means for storing the selected patient complaints and the associated stored identifying text for later retrieval and use.

20 Claim 20. The computer program of claim 19 wherein the graphical representations of one or more orientations of visible parts of the human body further comprise a front view, a right side view, a left side view, and a rear view.

Claim 21. The computer program of claim 1 wherein the means for displaying graphical representations further comprises a software program for displaying graphical representations on a computer display screen.

Claim 22. The computer program of claim 1 wherein the graphical user interface of the human body further comprises one or more forms for entry of medical emergency information.

5       Claim 23. The computer program of claim 22 wherein each form further comprises:  
                  an emergency call information header area,  
                  a form selection area,  
                  a form details area, and  
                  a form paging area.

10       Claim 24. The computer program of claim 23 wherein the form selection area further comprises one or more buttons for selection of each form for display and use.

15       Claim 25. The computer program of claim 23 wherein the form details area further comprises an area for graphical representation of the human body.

Claim 26. The computer program of claim 25 wherein the form details area further comprises:

20       drop down pick lists of selection alternatives for single entry user selection,  
                  radio buttons of selection alternatives for single entry user selection, and  
                  check boxes of selection lists for single entry user selection for each choice  
                  required.

Claim 27. The computer program of claim 26 wherein the drop down pick lists further comprise drop down pick-lists for patient data entry, in which the items listed for selection vary based upon patient's age as previously entered.

5       Claim 28. The computer program of claim 22 wherein the forms further comprise:  
                  one or more call forms for entry of information concerning an emergency medical call,  
                  one or more billing forms for entry of billing information for the patient,  
                  one or more problems forms for entry of details of the patient problem for which the emergency call was made and focal patient complaints,  
                  one or more exam forms for entry of patient exam findings, and  
                  one or more vitals forms for entry of patient vital signs.

10       Claim 29. The computer program of claim 28 wherein the problems form further comprises:  
                  an emergency call information header area,

15       a form selection area,  
                  a problem details area,  
                  an area for graphical representations of parts of the human body, and  
                  a form paging area.

20       Claim 30. The computer program of claim 29 wherein the problems form further comprises one or more motorized vehicle crash history forms for recording information about a motor vehicle crash involving the emergency medical patient.

Claim 31. The computer program of claim 28 wherein the vitals form further comprises one or more icons for rapid entry of normal vital sign and physical exam findings.

Claim 32. The computer program of claim 28 wherein the call form further comprises:

- 5 one or more quick entry icons for rapid entry of call event times,
- a vehicle type drop down menu providing for single entry selection of an emergency vehicle type used,
- a response drop down menu providing for single entry selection of a mode of response to the scene of the emergency, and
- a call type drop down menu providing for single entry selection of a type of call.

Claim 33. The computer program of claim 32 wherein the vehicle type drop down menu further comprises:

- an entry for ambulance,
- an entry for helicopter,
- an entry for airplane,
- an entry for boat, and
- an entry for other vehicle type.

20 Claim 34. The computer program of claim 28 wherein the graphical user interface further comprises:

- one or more patient forms for entry of patient demographic information,
- one or more past medical history forms for entry of information concerning a patient's past medical history, and

one or more patient medications forms for entry information concerning patient medications.

Claim 35. The computer program of claim 28 wherein the graphical user interface further comprises:

5 one or more treatment forms for entry of patient treatment by emergency medical technicians,

one or more disposition forms for entry of information concerning the disposition of the emergency call,

10 an integrated medical drug reference guide, and  
a drug treatment form to facilitate rapid documentation of medication administration, routes and quantities.

Claim 36. The computer program of claim 28 wherein the graphical user interface further comprises:

15 one or more crew forms for entry of information concerning an emergency medical services crew,

one or more review forms for entry of review information concerning the emergency call,

20 one or more notes forms for entry of general notes,  
one or more protocols forms for consulting protocols to be followed during the emergency call, and

one or more help screens for guiding emergency medical technicians on the use of the invention.

Claim 37. The computer program of claim 1 wherein the means for selecting data to be entered comprises a software program for determining the location of a pen stylus on a touch sensitive screen.

5 Claim 38. The computer program of claim 1 further comprising:

one or more software components supporting handwriting recognition,

one or more software components supporting numerical data entry,

one or more software components supporting signature capture, and

10 a software component for integrated signature capture for collection of required patient and crew signatures.

Claim 39. The computer program of claim 1 further comprising a software component for report printing via either wireless infrared transmission ports or standard serial cables to a variety of mutually compatible printers.

15 Claim 40. The computer program of claim 39 wherein the software component for report printing is capable of printing using a wireless infrared transmission port.

20 Claim 41. The computer program of claim 39 wherein the software component for report printing is capable of printing using a standard serial cable.

Claim 42. The computer program of claim 39 wherein the software component for report printing is capable of printing to a variety of mutually compatible printers.

Claim 43. The computer program of claim 1 further comprising a software component for transfer of medical emergency data to another computer system.

Claim 44. A single hand held computer system for gathering, retention, and transmission of emergency site electronic data for emergency medical services comprising:

a processor,

a main memory connected to the processor,

a storage subsystem connected to the processor for storage of medical reference guides and databases, and retention of medical emergency site electronic data,

a communications subsystem connected to the processor for transmission of medical emergency site electronic data,

a display subsystem connected to the processor and to the main memory, for displaying information to a user,

a touch sensitive screen connected to the display subsystem and to the processor, for allowing a user to select displayed information,

a pen stylus for selecting information displayed on a touch sensitive screen, and computer program means stored and operated in the hand held computer for gathering, retaining and transmitting emergency site medical data.

20 Claim 45. The single hand held computer system of claim 44 further comprising a wireless infrared transmission port connected to the processor for communication with printers.

Claim 46. The single hand held computer system of claim 44 further comprising a standard serial cable connected to the processor for communication with printers.

Claim 47. The single hand held computer system of claim 44, wherein the computer program means further comprises:

means for generating an optional motorized vehicle crash history form for recording information about a motor vehicle carrying the emergency medical patient,

graphical user interface means for simplifying documentation of focal patient complaints and physical exam findings,

means for supporting handwriting recognition, signature capture and numerical data entry via the graphical user interface,

means for presenting a drug reference guide via the graphical user interface,

means for rapid entry via the graphical user interface of normal vital sign and physical exam findings,

means for flexible patient data entry via the graphical user interface based upon patient's age,

multilingual means for documenting via the graphical user interface a patient's refusal of care,

means for integrated signature capture via the graphical user interface for collection of required patient and crew signatures,

means for versatile report printing via either wireless infrared transmission ports or standard serial cables to a variety of mutually compatible printers, and

means for recording drug treatment via the graphical user interface to facilitate rapid documentation of medication administration, routes and quantities.

Claim 48. A method of gathering emergency site electronic data for emergency medical services comprising the steps of:

providing access to medical reference databases on a hand held computer using the computer's graphical user interface,

5 supporting a graphical user interface for entry and storage of emergency related information on the hand held computer,

retaining all emergency related information entered by the user during physical movement and storage of the hand held computer, and

transferring the emergency related information from the hand held computer to storage at the emergency treatment facility.

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Claim 49. The method of gathering emergency site electronic data step of claim 48 wherein the step of supporting a graphical user interface for entry and storage of emergency related information further comprises the steps of:

15 collecting emergency call related information from the user,

collecting patient related information from the user,

collecting medical problem related information from the user,

collecting vital signs information from the user,

collecting treatment information from the user, and

20 collecting billing information from the user.

Claim 50. The method of gathering emergency site electronic data step of claim 49 wherein the step of collecting emergency call related information from the user further comprises:

presenting to the user one or more forms requesting the entry of emergency call related information, and

storing in mass storage the emergency call related information submitted by the user.

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Claim 51. The method of gathering emergency site electronic data of claim 49 wherein the step of collecting patient related information further comprises the steps of:

presenting to the user one or more forms requesting the entry of patient prior medical history information,

storing in mass storage the patient prior medical history information submitted by the user,

presenting to the user one or more forms requesting the entry of patient medications information,

storing in mass storage the patient medications information submitted by the user,

presenting to the user one or more forms requesting the entry of patient examination information, and

storing in mass storage the patient examination information submitted by the user.

Claim 52. The method of gathering emergency site electronic data of claim 49 wherein the step of collecting medical problem related information further comprises the steps of:

collecting motor vehicle crash information from the user, and

collecting patient complaint information from the user.

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Claim 53. The method of gathering emergency site electronic data of claim 52 wherein the step of collecting motor vehicle crash information further comprises the steps of:

presenting to the user one or more forms requesting the entry of motor vehicle crash information, and

5 storing in mass storage the motor vehicle crash information submitted by the user.

Claim 54. The method of gathering emergency site electronic data of claim 52 wherein the step of collecting patient complaint information further comprises the steps of:

displaying a graphical representation of one or more parts of the human body,

accepting a selection by the user of an affected part of the human body,

associating the selection of the affected part of the body with the graphical representation of that affected part of the body,

storing in mass storage the designation of the affected part of the body,

collecting the complaints reported by the patient for the affected part of the body,

collecting patient symptoms observed by the user for the affected part of the body, and

storing in mass storage the patient complaints and observed symptoms.

Claim 55. The method of gathering emergency site electronic data of claim 49 wherein the step of collecting vital signs information further comprises the steps of:

20 presenting to the user one or more forms requesting the entry of vital signs information, and

storing in mass storage the vital signs information submitted by the user,

Claim 56. The method of gathering emergency site electronic data of claim 49 wherein the step of collecting treatment information further comprises the steps of:

presenting to the user one or more forms requesting the entry of treatment information, and

5 storing in mass storage the treatment information submitted by the user,

Claim 57. The method of gathering emergency site electronic data of claim 49 wherein the step of collecting billing information further comprises the steps of:

presenting to the user one or more forms requesting the entry of billing information, and

storing in mass storage the billing information submitted by the user.

Claim 58. The method of gathering emergency site electronic data of claim 49 further comprising the step of collecting background information from the user,

Claim 59. The method of gathering emergency site electronic data of claim 58 wherein the step of collecting background information further comprises the steps of:

presenting to the user one or more forms requesting the entry of background information, and

20 storing in mass storage the background information submitted by the user.

Claim 60. The method of gathering emergency site electronic data of claim 58 wherein the background information further comprises:

#### emergency crew related information,

patient disposition information,  
case review information, and  
notes.

5 Claim 61. The method of gathering emergency site electronic data of claim 48 wherein  
the step of providing access to medical reference databases further comprises the step of  
providing access to a medical drug reference guide.

10 Claim 62. The method of gathering emergency site electronic data of claim 48 wherein  
the step of providing access to medical reference databases further comprises the step of  
providing access to a medical protocols database.